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A NEW SPECIES OF THE ANTHIINE GENUS *PLECTRANTHIAS* (PISCES: SERRANIDAE) FROM THE SALA Y GÓMEZ RIDGE IN THE EASTERN SOUTH PACIFIC, WITH COMMENTS ON *P. EXSUL*

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Abstract.—*Plectranthias parini,* a new species of anthiine serranid fish, is described from a single specimen collected from the Sala y Gómez Ridge in the eastern South Pacific, about 2700 km west of Chile at 25°02.6'S. It is distinguished from all other species of *Plectranthias* by the following combination of characters: scales with marginal cteni and ctenial bases, vertebrae 26 (10 precaudal + 16 caudal), predorsal bones 3, principal caudal-fin rays 17 (9 + 8), pectoral-fin rays 16, gillrakers 26 (8 + 18), and tubed lateral-line scales 37 left (40 right), and by the presence of two orange-red bars on the posterior half of the body, one just anterior to the anal fin and the other terminating ventrally posterior to the anal fin. This new species is the second species of *Plectranthias* to be reported from the eastern Pacific. It is briefly compared with other species of the genus. In addition new material of *P. exsul,* the only other eastern Pacific *Plectranthias* known, is discussed.

N. V. Parin sent the junior author a specimen of an undescribed species of anthiine serranid fish that was collected over the Sala y Gómez Ridge in the eastern South Pacific by personnel aboard a Soviet research vessel. Johnson (1983) provided strong evidence that the Serranidae are a monophyletic assemblage, but he did not delimit the Anthiinae, and this subfamily remains inadequately circumscribed—despite the facts that Roberts (1989) characterized it and Anderson et al. (1990) provided a preliminary definition of it. We assign the new species, described herein, to *Plectranthias* on the basis of its close resemblance to a number of species currently relegated to that genus. Randall (1980) revised (but did not demonstrate the monophyly of) *Plectranthias* Bleeker, 1873, subsuming eight other genera into its synonymy while recognizing 17 previously described species and 13 new ones as valid members of the genus. Since Randall's revision, seven other species of *Plectranthias* have been described as new: *P. randalli* Fourmanoir & Rivaton, 1980; *P. altipinnatus* Katayama & Masuda, 1980; *P. maculatus* Fourmanoir, 1982; *P. barroi* Fourmanoir, 1982; *P. fijiensis* Raj & Seeto, 1983; *P. exsul* Heemstra & Anderson, 1983; and *P. bilaticlavia* Paulin & Roberts, 1987. There are several other undescribed species of *Plectranthias* (in addition to the one described herein) in museum collections. The objectives of this paper are to describe the new species, to compare it with other species of the genus, and to discuss new material of *P. exsul.*

Institutional abbreviations are as listed in Leviton et al. (1985). Methods for making counts and measurements are those of Anderson et al. (1990). Most measurements are presented as percentages of the standard length (SL), but some are given as quotients of SL, head length, orbital diameter, or snout

length; these quotients are rounded to the nearest 0.05. Osteological data are from radiographs.

Plectranthias parini, new species
Figs. 1, 2A, Tables 1, 2

Holotype.—USNM 312925, 84.7 mm SL; 25°02.6'S, 97°29.2'W; 260–272 m; R/V *Prof. Shtokman* cruise 18, station 1984; 3–4 May 1987; bottom otter trawl.

Diagnosis.—A species of *Plectranthias* distinguishable from all other species of Serranidae by the following combination of characters. Dorsal-fin rays X, 16; second soft ray of dorsal fin produced. Anal-fin rays III, 7. Pectoral-fin rays 16. Posterior margin of caudal fin truncate except two dorsalmost branched rays produced; principal rays 9 + 8; branched rays 8 + 7. Vertebrae 26 (10 precaudal + 16 caudal). Formula for configuration of predorsal (supraneural) bones, anterior neural spines, and anterior dorsal pterygiophores 0/0+0/2/1+1/1/ (using symbolization of Ahlstrom et al. 1976). Tubed lateral-line scales 37 (left), 40 (right). Gillrakers, including rudiments, on first gill arch 8 + 18—total 26 (both sides). Preopercle without antrorse spines, both free margins serrate. Posterior margin of bony opercle with three spinous processes, middle one best developed, but ventralmost well developed. Interopercle and subopercle serrate near their junction. Interorbital region flattened. Scales ctenoid, resembling those of serranine serranids (i.e, with rows of ctenial bases [Hughes 1981] present proximal to marginal cteni). No scales on lateral aspect of snout, maxilla, anterior three-fourths of lower jaw, gular region, branchiostegals, or branchiostegal membranes. Two broad orange-red bars on posterior half of body, one just anterior to anal fin, the other terminating ventrally posterior to anal fin.

Description.—Characters presented in the diagnosis are not repeated unless necessary for clarification. Most morphometric data appear in Table 1. Mouth nearly terminal, lower jaw exceeding upper jaw very slightly. Premaxillae protrusile. Posterodorsal border of maxilla not covered by elements of circumorbital series when mouth closed. Maxilla reaching vertical through posterior border of eye. Maxilla not abruptly widened distally, without a hook or shelf on labial border. Posteroventral corner of maxilla with a poorly developed rounded extension. Small splint-like supramaxilla present. Nares rather close together; anterior naris in a tube which is short anteriorly and well developed laterally, medially, and posteriorly; posterior part of tube not reaching posterior naris when reflected; posterior naris dorsoventrally elliptical and larger than anterior naris. Orbital margin without fleshy papillae. Serrae on preopercle 43 left (ca. 43 right), on interopercle 4 left (ca. 4 right), on subopercle 8 left (10 right). Branchiostegals 7. Longest gillrakers longer than longest gill filaments. Pseudobranch with 25 filaments. Dorsal fin single, not incised between spinous and soft portions. Second soft ray of anal fin slightly produced. Second anal spine more robust than first or third, almost twice as long as first, slightly longer than third. Pectoral fin symmetrical, middle rays longest; dorsalmost and ventralmost rays unbranched, other rays branched; pectoral fin reaching vertical through base of fourth dorsal soft ray and base of third anal soft ray. Pelvic-fin rays I, 5; pelvic fin inserted beneath base of pectoral fin, the tip reaching a vertical through base of first dorsal soft ray, falling short of origin of anal fin. Procurrent caudal-fin rays 8 dorsally, 7 ventrally. Pleural ribs on vertebrae 3 through 10. Epipleural ribs associated with first 10 vertebrae. Epihaemal ribs (bones in the same series as the epipleural ribs which appear to be modified intermuscular bones; see Stiassny & Jensen 1987:300) on vertebrae 11 through 13. Posteriormost complete pterygiophore of anal fin trisegmental; no trisegmental pterygiophores associated with dorsal fin. Procurrent spur (Johnson 1975) absent; penultimate ventral procurrent caudal-fin ray not shortened basally. Parhypural with well-developed hypurapophysis.

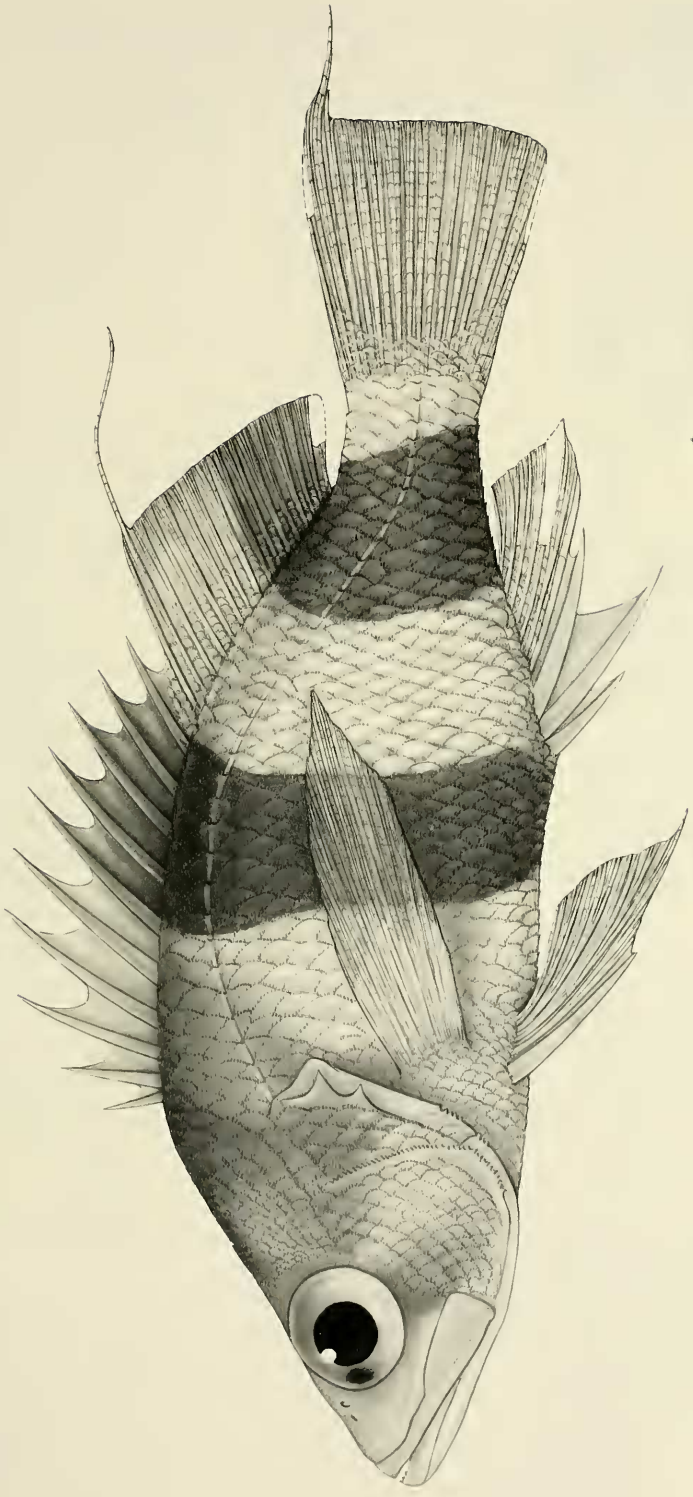

Fig. 1. Holotype of *Plectranthias parini*, USNM 312925, 84.7 mm SL; Sala y Gómez Ridge, eastern South Pacific; pattern of coloration drawn from color transparency. (Posterior bar does not extend as far out on dorsal fin as shown. See Fig. 2A for more accurate representation.

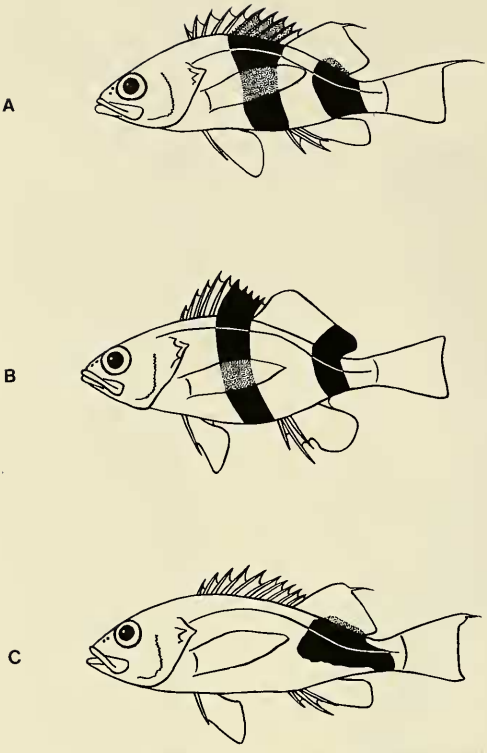

Fig. 2. Drawings of specimens of three species of *Plectranthias* to show patterns of coloration. (A) Holotype of *P. parini,* USNM 312925, 84.7 mm SL, from color transparency; (B) paratype of *P. bilaticlavia,* NMNZ P.20264, 70.9 mm SL, from Paulin & Roberts, 1987 (redrawn with permission); (C) *P. exsul,* from color transparency.

Autogenous hypurals 5. Epurals 3. Uroneurals 1 pair (posterior pair absent). Lateral line complete, running parallel to dorsal body contour below dorsal fin, curving to near mid-lateral axis of body on caudal peduncle. Tubes in lateral-line scales branched anteriorly, simple posteriorly. No secondary squamation. Most of head covered with scales; most of dorsum of snout, lateral aspect of snout, maxilla, supramaxilla, lachrymal, almost all of suborbital region, most of lower jaw, gular region, branchiostegals, and branchiostegal membranes without scales. Interorbital region heavily covered with scales; posterior one-fourth of lower jaw with some scales. Posterior part of spinous dorsal fin scaly basally; soft dorsal and anal scaly for one-third to one-half distances from bases to distal margins of fins; pectoral, pelvic, and caudal fins scaly basally; pelvic axillary process poorly developed; short scaly interpelvic process between bases of pelvic fins. Rows of cheek scales 9 (both sides). Scale rows between lateral-line and mid-base of spinous dorsal fin 2 (both sides). Scales from dorsal-fin origin to lateral line 3 (both sides). Scales from anal-fin origin to lateral line ca. 15 left, ca. 16 right. Circumpeduncular scales 17.

Premaxilla with a band of small conical teeth, band broadest at anterior end of jaw near symphysial diastema where innermost teeth variously enlarged into much bigger conical and caniniform teeth; a robust canine near anterior end of jaw. Dentary with a row of small conical teeth extending from near posterior end of bone to about mid-length of jaw; three well-developed canines at about mid-length of jaw on left (one on right); anterior to canines a band of small conical teeth extending to symphysial diastema; band expanded at anterior end of jaw where innermost teeth variously enlarged into much bigger conical and caniniform teeth; exserted canine at anterior end of jaw. Vomer and palatine with conical teeth. Vomerine teeth in chevron-shaped patch, without backward prolongation. Palatine, for most of its length, with teeth in a narrow band; anteriorly band of teeth wider. No teeth on tongue or pterygoids.

Body length (at dorsal-fin origin) 2.80, head length 2.55 in SL. Bony orbital diameter 3.30 in head length. Bony interorbital width 8.15 in head length, 2.45 in bony orbital diameter. Snout length 1.45 in bony orbital diameter. Internarial distance 6.90 in snout length.

Coloration.—Color from a transparency taken shortly after capture of the holotype: Head mainly pale orange, dull yellow ventrally. Iris dull yellow except for a hint of reddish coloration on posterior border. Body with an overall orange cast dorsally, yellowish ventrally. Two orange-red parallel bars

Table 1.—Morphometric data for the holotype of *Plectranthias parini* and specimens of *P. exsul* and *P. bilaticlavia*. Data on *P. bilaticlavia*, with the exception of internarial distance, are from Paulin & Roberts 1987. Standard lengths are in mm; other measurements, in percentages of standard length; > = slightly damaged.

Character	*P. parini*	*P. exsul*		*P. bilaticlavia*	
		n	Range	*n*	Range
Standard length	84.7	9	37.6–158	3	36.5–70.9
Head, length	39.4	9	37.0–39.1	3	39.4–41.1
Snout, length	8.1	9	8.0–10.6	3	7.9–10.2
Orbit, diameter	11.9	9	8.4–11.2	3	12.3–15.4
Postorbital length of head	19.4	9	17.2–20.0		
Upper jaw, length	18.9	9	16.0–19.6	3	17.2–18.8
Maxilla, width	5.0	9	4.8–6.3		
Interorbital width	4.8	9	5.1–6.5	3	4.2–5.4
Internarial distance	1.2	2	0.8–1.1	2	0.7–1.1
Body, depth	35.8	9	30.1–39.6	3	32.9–35.3
Body, width	17.8	4	17.5–18.6	3	16.1–18.3
Predorsal length	40.4	9	35.8–39.9	3	39.9–41.8
Prepelvic length	37.7	2	36.5–40.4	3	29.5–46.5
Preanal length	68.5	9	64.1–70.6	3	69.5–72.0
Caudal peduncle, length	19.7	9	18.6–22.7		
Caudal peduncle, depth	11.7	9	9.8–13.1	3	10.0–12.8
Dorsal-fin base, length	56.1	2	52.6–52.8	3	46.3–53.4
Pectoral fin, length	36.7	9	ca. 30.1–34.3	3	30.4–33.7
Pelvic fin, length	28.9	8	ca. 22.3–26.1	3	25.2–27.6
Anal-fin base, length	16.8	2	16.6–16.8	3	16.7–19.1
Anal fin, length	33.8	8	26.5–ca. 30.8		
Upper caudal-fin lobe, length	ca. 35.5	8	>24.4–>30.4		
Lower caudal-fin lobe, length	26.6	8	22.2–>27.4		
First dorsal spine, length	5.8	6	6.2–>7.9	3	6.8–7.1
Third dorsal spine, length	13.7	9	14.3–>16.8		
Fourth dorsal spine, length	17.9	9	>14.1–>18.8		
Tenth dorsal spine, length	12.0	8	9.1–11.3		
Longest dorsal spine, length	18.3 (5th)	9	16.3–19.9 (4th or 5th)	3	15.8–19.4
Longest dorsal soft ray, length	ca. 34.5 (2nd)	8	ca. 16.2–>25.5 (2nd)	2	13.6–22.2
First anal spine, length	10.5	9	7.6–11.3	3	10.1–12.1
Second anal spine, length	19.2	8	16.0–20.7	3	17.8–22.0
Third anal spine, length	17.9	9	14.7–15.9	3	14.5–15.4
Longest anal soft ray, length	25.4 (2nd)	1	ca. 21.6 (3rd)	3	19.7–25.6
Pelvic spine, length	17.8	4	14.2–16.9	3	16.7–19.6

Table 2.—Frequency distributions of numbers of tubed lateral-line scales in three species of *Plectranthias*. Counts of scales were made from both sides of most specimens; *n* = number of specimens examined.

Species	*n*	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	$\bar{X}$
P. exsul																	
Juan Fernández	5										1	2	1	4	1	1	43.50
Nazca Ridge	5					1	—	—	2	4	1	1					39.67
P. parini	1						1	—	—	1							38.50
P. bilaticlavia	2	1	2														32.67

Table 3.—Morphometric data on specimens of *Plectranthias exsul* from the Juan Fernández Islands and the Nazca Ridge. Standard lengths are in mm; other measurements in percentages of standard length.

Measurement	Juan Fernández Islands			Nazca Ridge		
	n	Range	$\bar{X}$	*n*	Range	$\bar{X}$
Standard length	5	134–158	149	4	115–150	130
Postorbital length of head	5	18.3–20.0	19.02	4	17.2–19.0	18.32
Upper jaw, length	5	18.3–19.6	19.04	4	17.5–18.7	18.15
Maxilla, width	5	5.5–6.3	5.90	4	5.0–5.6	5.32
Body, depth	5	35.2–39.6	37.06	4	33.4–36.1	34.35
Preanal length	5	64.7–69.3	66.30	4	65.8–70.6	69.08
Caudal peduncle, depth	5	10.7–13.1	11.76	4	10.3–10.9	10.70
Longest dorsal spine length	5	18.1–19.9	18.76	3	16.3–18.2	17.53

on body; first originating well out on interradial membranes 5 through 9 of spinous portion of dorsal fin and extending slightly obliquely to terminate ventrally almost entirely anterior to first anal spine—first bar slightly broader at dorsal-fin base than at ventral termination; second bar beginning on bases of posterior dorsal soft rays and on dorsum of anterior part of caudal peduncle and extending slightly obliquely to terminate ventrally posterior to anal-fin base; bars, particularly posterior one, somewhat wider than comparable bars in *Plectranthias bilaticlavia* (compare Figs. 2A & B). Except where orange-red bars encroach on dorsal fin, fins mostly pallid, but anteriormost interradial membranes of spinous dorsal fin with some yellow-orange. In alcohol, pigmentation lost except remnants of vertical bars still evident.

Comparisons.—*Plectranthias parini,* with 37 to 40 lateral-line scales, has more lateral-line scales than any other species in the genus except *P. kelloggi* (Jordan & Evermann, 1903)—32 to 38, *P. taylori* Randall, 1980—40 or 41, *P. randalli* Fourmanoir & Rivaton, 1980—39, and *P. exsul* Heemstra & Anderson, 1983—36 to 46. Three other species of *Plectranthias* have counts of lateral-line scales closely approaching those of *P. parini*—*P. alleni* Randall, 1980, and *P. kamii* Randall, 1980, each with 33 to 36, and *P. barroi* Fourmanoir, 1982, with 35 or 36. *Plectranthias parini,* with a total of 26 gillrakers on the first gill arch, can be distinguished from six of the seven above species by counts of the total number of gillrakers on the first gill arch: *P. taylori, P. randalli, P. alleni,* and *P. kamii* (each with 20 or fewer), *P. kelloggi* (with 20 to 24), and *P. barroi* (with 31 to 35).

Plectranthias parini (from the Sala y Gómez Ridge) is apparently closely related to *P. exsul* (from the Juan Fernández Islands and the Nazca Ridge in the eastern South Pacific). In addition to having similar counts of lateral-line scales, there is a slight overlap in total number of gillrakers on the first arch—26 in *P. parini,* 26 to 31 (7 of 10 specimens with 28 or 29) in *P. exsul.* The two species have distinctly different patterns of coloration (see descriptions of live coloration and Figs. 2A & C). In *P. parini* the longest dorsal soft ray is appreciably longer that in *P. exsul* (Table 1). Also, measurements of a number of other body parts of *P. parini* fall beyond the ranges of those for *P. exsul*; this is particularly noticeable for the pectoral, pelvic, and anal fins, the upper caudal-fin lobe, and the third anal spine (Table 1).

Not only does *P. kelloggi* (known from off Japan, New Caledonia, and Hawaii) have a slightly lower gillraker count than does *P. parini,* it also has a color pattern reminiscent of that of *P. exsul* (compare Randall, 1980:146, fig. 15, and Fig. 2C) and distinctly different from that of *P. parini* (compare Randall, 1980:146, fig. 15, and Fig. 2A).

Plectranthias parini displays a pattern of

coloration very much like that of *P. bilaticlavia* Paulin & Roberts, 1987, (known only from off the Kermadec Islands off northern New Zealand) (compare Figs. 2A & B), but it is separated easily from *P. bilaticlavia* in having more lateral-line scales (37 to 40 vs. 32 or 33, Table 2) and more dorsal soft rays (16 vs. 15). In *P. parini* the longest dorsal soft ray is much longer than in *P. bilaticlavia,* and the measurements of a number of other body parts (most noticeably the pectoral fin, dorsal-fin base, and third anal spine) fall outside the ranges for those of *P. bilaticlavia* (Table 1). Paulin & Roberts (1987) reported that one of the three known specimens of *P. bilaticlavia* (the holotype) has 27 vertebrae (10 precaudal + 17 caudal); the other two have 26 (10 + 16). (We have examined radiographs of the holotype and one of the paratypes of *P. bilaticlavia* and confirm the counts reported in the literature.) *Plectranthias parini* has 26 (10 + 16).

Distribution.—*Plectranthias parini* is known only from the type locality on the Sala y Gómez Ridge in the eastern South Pacific, about 2700 km west of Chile. The type locality is approximately 1200 km to the west of the nearest locality of capture of the related species *P. exsul.*

Etymology.—We take pleasure in naming this new species for N. V. Parin who provided the holotype and a color transparency of it.

Plectranthias exsul
Heemstra & Anderson, 1983
Fig. 2C, Tables 1–3

Since the publication of the original description of *Plectranthias exsul* (from off the Juan Fernández Islands and the Nazca Ridge in the eastern South Pacific) by Heemstra and Anderson (1983), three additional specimens from the Nazca Ridge have become available; all three are smaller (37.6, 115, 122 mm SL) than any of the specimens (133–158 mm SL) previously studied. In addition, C. D. Roberts brought to our attention another specimen (154 mm SL) of *P. exsul* from off the Juan Fernández Islands. The new material agrees reasonably well with the specimens in the original description with the exceptions of counts of tubed lateral-line scales in specimens from the Nazca Ridge. The counts for lateral-line scales provided by Heemstra & Anderson (1983) range from 40 to 46, but those for the additional Nazca Ridge specimens range from 36 to 40. The range of numbers of lateral-line scales for the five specimens from the Juan Fernández Islands is 41 to 46 ($\bar{X}$ = 43.50, based on counts from both sides of each specimen; Table 2) and that for the five specimens from the Nazca Ridge is 36 to 42 ($\bar{X}$ = 39.67, based on nine counts; Table 2). Discrepancies in the ranges of measurements of certain body parts of specimens from the two localities may be indicative of real differences between the populations (Table 3), but it is possible also that these differences are artifacts of the small sample sizes.

At the time of publication of the original description of *P. exsul* no information was available on live coloration. A color transparency taken shortly after capture of a specimen of this species reveals: Head dark red-orange dorsally, with somewhat diffuse brighter red-orange area on preopercle near orbit; posterior and ventral parts of head lighter—mostly dull yellow. Iris dull yellow anteriorly and posteriorly, the yellow bordered by a narrow red-orange rim anteriorly, suffused with red-orange posteriorly; dorsal and ventral portions of iris largely melanistic. Body generally with reddish-orange cast, darker dorsally; a well-defined brilliant red oblong area extending from bases of posterior dorsal soft rays ventrally to just below midline and then posteriorly over middle of caudal peduncle to reach mid-ventral line near base of caudal fin (see pattern of coloration in Fig. 2C). Fins with dull yellowish cast (some dull orange on spinous portion of dorsal fin), but without any distinctive pigmentation.

In order to distinguish *P. exsul* from other species of *Plectranthias,* see section on comparisons under *P. parini* and Heemstra & Anderson (1983).

Other Material Examined

Plectranthias exsul.—Nazca Ridge: BPBM 29400 (one specimen, 37.6 mm SL); 25°37′S, 85°26′W; 190 m; 4 Oct 1980; R/V *Ikhtiandr*; trawl. USNM 312926 (1, 115); 25°43′S, 85°22′W; 185 to 200 m; 5 Sep 1983; R/V Prof. *Mesyatzev*; bottom trawl. USNM 312927 (1, 122); 25°41.7′S, 85°23.7′W; 162 to 168 m; 26 Apr 1987; R/V *Prof. Shtokman*; bottom trawl. Juan Fernández: MNHNC P.5611 (1, 154); 33°37′15″S, 78°49′56″W; Jan–Feb 1970.

Plectranthias bilaticlavia.—Kermadec Islands: Holotype: NMNZ P.14024 (36.5 mm SL); Raoul Island, off Bell's Flat; 164 to 210 m; 4 Apr 1973; R/V *Acheron*; Agassiz trawl. Paratype: NMNZ P.20264 (70.9 mm SL); south of L'Esperance Rock; 270 m; 18 Jul 1974; Agassiz trawl.

Acknowledgments

N. V. Parin gave us the opportunity to describe the new species, provided us with color transparencies of both the new species and *Plectranthias exsul,* sent us new material of *P. exsul,* and allowed us to deposit specimens in the Division of Fishes, USNM; C. D. Paulin permitted us to examine the specimens of *P. bilaticlavia*; C. D. Roberts made us aware of a specimen of *P. exsul* and furnished a radiograph of the holotype of *P. bilaticlavia*; C. D. Paulin, C. D. Roberts, and the editor of the National Museum of New Zealand Records gave us permission to redraw the figure of the holotype of *P. bilaticlavia*; W. F. Hoffman and P. P. Maier made the other radiographs used in this study; J.E. Trecartin prepared the figures; F. Brigman typed the manuscript; and C. C. Baldwin, K. E. Carpenter, P. C. Heemstra, and C. D. Roberts reviewed the manuscript. The Research & Development Committee, Department of Biology, College of Charleston, provided financial assistance. This is GMBL contribution number 91.

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